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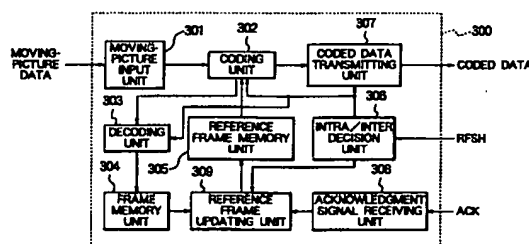
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(54) **Video coder, decoder and transmission system**

(57) A transmission system transmits a series of coded frames from a transmitting device to a receiving device, using both intra-frame coding and inter-frame coding. The receiving device decodes the frames and sends acknowledgment signals to the transmitting device. The transmitting device selects the reference frame employed in inter-frame coding according to these acknowledgment signals. The method of reference frame selection can be varied according to an assessment of transmission channel quality. The assessment criteria, or the reference frame selection method itself, can be varied in response to input from a human user.

FIG. 1





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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	JP 06 237451 A (HITACHI LTD) 23 August 1994	1-4, 24, 25, 33-36	H04N7/50 H04N7/64
Y	& US 5 528 284 A (IWAMI ET AL.) * column 1, line 59 - column 4, line 18 *	8, 14-19, 26-29, 40, 46-53	
A	* column 12, line 40 - column 15, line 47; claims; figures *	5-7, 9-13, 20-23, 30-32, 37-39, 41-45, 54-59	
Y	US 4 422 171 A (WORTLEY DAVID L ET AL) 20 December 1983	26-29	
A	* abstract * * column 1, line 45 - column 2, line 58; claims; figures *	1-25, 30-59	
Y	EP 0 637 175 A (MATSUSHITA ELECTRIC IND CO LTD) 1 February 1995	8, 40	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	* abstract; claim 1 *	1-7, 9-39, 41-59	H04N H04L
A	US 4 774 587 A (SCHMITT BONNIE J) 27 September 1988 * the whole document *	1-59	
A	EP 0 402 954 A (HARRIS CORP) 19 December 1990 * page 7, column 11, line 32 - line 43 * * column 12, line 22 - line 52 * -/--	1-13, 24-30, 33-45	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 December 1998	Examiner Foglia, P
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
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Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 5 414 717 A (MATSUMOTO NORIO ET AL) 9 May 1995 * abstract * * column 5, line 38 - line 68 * * column 8, line 12 - line 27 * * column 10, line 57 - column 11, line 9 * ---	1-59	
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 665 (E-1472), 8 December 1993 & JP 05 219056 A (NEC CORP), 27 August 1993 * abstract * & US 5 457 808 A (OSAWA ET AL.) * the whole document * ---	1,5,6, 33,36-38	
A	PATENT ABSTRACTS OF JAPAN vol. 095, no. 007, 31 August 1995 & JP 07 095571 A (OKI ELECTRIC IND CO LTD), 7 April 1995 * abstract * ---	1,5,6, 33,36-38	
A	RICE M ET AL: "ADAPTIVE ERROR CONTROL FOR SLOWLY VARYING CHANNELS" IEEE TRANSACTIONS ON COMMUNICATIONS, vol. 42, no. 2/03/04, 1 February 1994, pages 917-926, XP000447345 * abstract * ---	1,20-23, 31-33, 54-59	
Y	* page 917, right-hand column, paragraph I - page 918, left-hand column * ---	14-19, 46-53	
		-/--	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 December 1998	Examiner Foglia, P
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.8)
A	BAKHTIYARI S ET AL: "A ROBUST TYPE II HYBRID ARQ SCHEME WITH CODE COMBINING FOR MOBILE COMMUNICATIONS" PROCEEDINGS OF THE PACIFIC RIM CONFERENCE ON COMMUNICATIONS, COMPUT AND SIGNAL PROCESSING, VICTORIA, MAY 19 - 21, 1993, vol. 1, 19 May 1993, pages 214-217, XP000409290 INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS * paragraph 2.1 *	1, 14-21, 46-53	
A	ONUNGA J O ET AL: "A SIMPLE PACKET RETRANSMISSION STRATEGY FOR THROUGHPUT AND DELAY ENHANCEMENT ON POWER LINE COMMUNICATION CHANNELS" IEEE TRANSACTIONS ON POWER DELIVERY, vol. 8, no. 3, 1 July 1993, pages 818-826, XP000403075 * abstract * * paragraph II.A *	1, 14-21, 46-53	
A	GB 2 278 752 A (SAMSUNG ELECTRONICS CO LTD) 7 December 1994 * page 3, line 4 - line 15 * * page 11, line 5 - line 26 *	1, 14, 22-24, 31-33, 46, 54-59	TECHNICAL FIELDS SEARCHED (Int.Cl.8)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 December 1998	Examiner Foglia, P
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-13 24-30 33-45

Video coding and decoding system with inter-intra frame
selection based on acknowledgment signals from decoder

2. Claims: 14-23 31 32 46-59

Video coding and decoding system with inter-intra frame
selection modes depending on transmission channel quality

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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02-12-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 06237451 A	23-08-1994	US 5528284 A	18-06-1996
US 4422171 A	20-12-1983	EP 0055404 A	07-07-1982
		JP 57171861 A	22-10-1982
EP 0637175 A	01-02-1995	JP 7095584 A	07-04-1995
		US 5479212 A	26-12-1995
US 4774587 A	27-09-1988	NONE	
EP 0402954 A	19-12-1990	US 5128776 A	07-07-1992
		US 5426513 A	20-06-1995
		AT 143558 T	15-10-1996
		DE 69028660 D	31-10-1996
		DE 69028660 T	03-04-1995
US 5414717 A	09-05-1995	JP 2700843 B	21-01-1998
		JP 5160842 A	25-06-1993
GB 2278752 A	07-12-1994	CN 1098583 A	08-02-1995
		JP 7099656 A	11-04-1995
		US 5774483 A	30-06-1998